

On 22 September 1989, a category four hurricane made landfall in South Carolina. Hurricane Hugo's sustained winds of 220 kmh and local winds of 290 km/hr damaged in excess of six-billion board feet of timber. Damage to bald eagle (*Haliaeetus leucocephalus*) nesting areas was both intensive and extensive. Twenty-five of the state's fifty-four breeding areas had all eagle nests destroyed. Twenty-two pairs rebuilt nests during the 1989-90 nesting season and the other three pairs rebuilt the following year. The mean distance between nest sites used before and after the hurricane was 1.02 km (SD = 1.12). Eighteen of twenty-five pairs rebuilt nests outside both the primary (radius = 201 m) and secondary (radius = 402 m) management zones. There was no significant difference ($t = 0.42$, $P = 0.68$) in chick production in the twenty-five affected breeding areas between the season prior to Hurricane Hugo (1.28 young per breeding area) and the year of Hurricane Hugo (1.12 young per breeding area). Nor was there a significant difference ($t = 0.94$, $P = 0.35$) in chick production between impacted breeding areas ($N = 25$) and breeding areas outside the path of the hurricane (0.90 young per breeding area). Bald eagles displayed a high degree of nest site fidelity and successfully adjusted to extensive habitat alterations which occurred during the nonnesting season. However, the site tenacity displayed by nesting eagles suggests that they are likely to persist in an area despite extensive habitat alterations or repeated nest failures.

EFFECTS OF SHORT-TERM FOOD DEPRIVATION ON GROWTH OF HAND-RAISED AMERICAN KESTRELS (*FALCO SPARVERIUS*)

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Sudden prey reductions were simulated to examine their impact on growth parameters of nestling American kestrels (*Falco sparverius*) hand-raised in captivity. The experimental design consisted of three treatments: (1) 15 nestlings fed *ad libitum* (control individuals), (2) 15 nestlings that were starved for 24 hr when 7 d old, and for 36 hr when 21 d old, (3) 15 nestlings which starved for 36 hr when 14 d old, and 48 hr when 28 d old. The starved birds were fed *ad libitum* outside the starvation periods. Fitting biometrical data to logistic models (body mass and bone measurements) or linear models (feather measurements), revealed no significant differences for the growth parameters between control birds and the experimental groups. This reveals no long-term effects caused by temporary starvation. Although starved birds suffered a significant loss of weight, they did not reduce the growth rate of bones and feathers and quickly recovered mass by in-

creasing food ingestion when the *ad libitum* diet was restored. The response of males and females to starvation was similar.

POLYGAMY IN BALD EAGLES

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While individuals of several species of raptors have been described as having multiple mates, little such documentation exists for bald eagles (*Haliaeetus leucocephalus*) beyond some anecdotal accounts. Cases of both polygyny and polyandry have been witnessed and monitored in New York State over a period of 8 yr, involving three birds in each case. A polyandrous trio at a single nest site was successful in six of eight breeding attempts, fledging a total of nine young. The polygynous trio used two nests in close (0.8 km) proximity to successfully fledge 11 young during six breeding attempts. Periodic observations revealed that, in both cases, all three eagles participated in nest building, incubation and rearing (food provisioning).

EFFECTS OF HABITAT ALTERATION ON THE BREEDING DENSITY AND PRODUCTIVITY OF ROADSIDE HAWKS IN THE PETEN, GUATEMALA

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As part of the Peregrine Fund's Maya Project, I conducted systematic and intensive searches for nesting roadside hawks (*Buteo magnirostris*) in study plots established in the pristine forest of Tikal National Park and in a slash-and-burn habitat south of the park. The 8.25 km² forest plot supported 13 territories which were occupied but only five pairs attempted to nest. The 8 km² slash-and-burn plot contained 12 territorial pairs, 10 of which nested. Pairs nested earlier, in smaller trees, and at lower heights in the slash-and-burn habitat. Pairs in the pristine forest nested in bajo forest areas characterized by low elevation, seasonal inundation, and a low canopy (10-15 m). Productivity in the slash-and-burn habitat (0.42 young/pair) was greater than in the pristine forest (0.15 young/pair). Overall, a total of 26 nests were found during the field season in three habitat types, the highest productivity (0.83 young/pair) was found in slightly disturbed human-use areas in Tikal National Park.

FORAGING AND CREPUSCULAR/NOCTURNAL BEHAVIORS OF THE WESTERN BURROWING OWL

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Specific foraging habits and crepuscular/nocturnal be-